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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/711,684	11/10/2000	Thorkell Gudmundsson	001340.P080	7380

7590

11/19/2003

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EXAMINER

ESCALANTE, OVIDIO

ART UNIT	PAPER NUMBER
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2645

DATE MAILED: 11/19/2003

10

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/711,684

Applicant(s)

GUDMUNDSSON ET AL.

Examiner

Ovidio Escalante

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 August 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13, 15-25, 27-36 and 38-40 is/are rejected.
- 7) ☒ Claim(s) 14, 26 and 37 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. This action is in response to applicant's amendment filed on August 26, 2003. **Claims 1-40** are now pending in the present application.

Claim Objections

2. Claim 14 is objected to because of the following informalities:

Regarding claim 14, line 4, "on" apparently should be changed to "one". Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 5,6,11,16,17,19-21,23,28-32,34,39,40 are rejected under 35 U.S.C. 102(b) as being anticipated by Barton US Patent 5,343,461.

Regarding claims 5,20 and 31, Barton teaches a method, an article of manufacture comprising a program storage medium readable by a computer and a computer readable medium containing executable instructions which, when executed in a processing system causes a system to perform a method for diagnosing impairments in a communications system, (abstract; col. 1, lines 11-34), the method comprising:

accumulating statistical information about the impairments, (col. 1, line 60-col. 2, line 7; statistical information from multiple key variables are accumulated);

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creating a priori statistical models, (col. 1, line 60-col. 2, line 7; historical data and detected characteristics are received and models are derived from the data for preventive maintenance); and

updating the a priori statistical models using a posteriori statistical models of the impairments, (col. 2, lines 1-7; col. 25, lines 50-67; col. 26, lines 17-35; Barton teaches of deriving data for preventive maintenance and storing the data to prevent future problems).

Regarding claims 6,21 and 32, Barton teaches wherein the impairments are external (out of domain) impairments, (col. 25, lines 50-68).

Regarding claims 11,23 and 34, Barton teaches wherein the impairments are internal (in domain) impairments, (col. 30, lines 2-6).

Regarding claims 16,28 and 39, Barton teaches performing a statistical parameter estimation, (col. 40, lines 35-41).

Regarding claims 17,29 and 40, Barton teaches performing a hypothesis test, (col. 7, line 60-col. 2, line 7; col. 40, lines 43-67).

Regarding claims 19 and 30, Barton teaches a computer readable medium containing executable instructions which, when executed in a processing system, cause said system to perform a method and an article of manufacture comprising a program storage medium readable and a computer and tangible embodying at least one program of instruction executable by said computer to perform a method (abstract; col. 1, lines 11-34) comprising:

compiling statistical models of physical layers of a communication system, (col. 1, line 60-col. 2, line 7; col. 4, lines 36-45);

creating at least one a priori distribution, (col. 1, line 60-col. 2, line 7);

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storing the statistical models and the a priori distribution in a storage medium, (col. 1, lines 60-col. 2, line 7; col. 30, lines 2-6); and

diagnosing at least one impairment in the communication system using the statistical models and the a priori distribution, (col. 1, lines 60-col. 2, line 7; col. 25, lines 50-67).

Claim Rejections - 35 USC § 103

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

6. Claims 1-4,10,12,18,24 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barton et al. US Patent 5,343,461 in view of Coiffi US Patent 5,887032.

Regarding claim 1, Barton teaches a method comprising:

compiling statistical models of physical layers of a communications system, (col. 1, line 60-col. 2, line 7; col. 4, lines 36-45; historic performance models of communication layers are compiled using multiple key variables);

storing said statistical models and cross-talk functions in a storage medium, (col. 1, line 60-col. 2, line 7; col. 30, lines 2-6; performance models are stored and cross-talk errors are considered in diagnosing errors in the system. Barton inherently stores cross-talk functions since the system minimizes cross-talk and cross-talk functions are required to minimize cross-talk); and

using said statistical models and said cross-talk functions to diagnose probable causes of events detected in said communications system, (col. 1, line 60-col. 2, line 7; col. 25, lines 50-67).

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While Barton teaches of using historic performance models to determine errors in the communication system and of eliminating cross-talk, Barton does not specifically teach of creating *a priori* distributions of cross-talk transfer functions.

Coiffi teaches of a system for canceling cross-talk in a communication system. Coiffi further teaches that it was well known in the art to derive a plurality of cross-talk transfer functions, (col. 11, line 40-col. 12, line 11) so that problems with the system can be determined.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Barton by creating *a priori* distributions of cross-talk transfer functions, as suggested by Coiffi so that cross-talk interference can be mitigated and so that the system can accurately diagnose the cause of system problems.

Regarding claim 10,12,18,24 and 35, Barton in view of Coiffi teaches wherein the communication system is a DSL system, (abstract, Coiffi).

Regarding claim 2, Barton teaches using a posteriori statistical models to update the *a priori* distribution, (col. 7, line 60-col. 2, line 7; col. 25, lines 60-67).

Regarding claim 3, Barton teaches performing a statistical parameter estimation, (col. 39, lines 38-41).

Regarding claim 4, Barton teaches performing a hypothesis test, (col. 1, line 60-col. 2, line 7).

7. Claims 7-9,22,25,27,33,36 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barton in view of Bradley US Patent 3,814,868.

Regarding claims 7 and 8, while Barton teaches of the external impairments being multiple variables, Barton does not teach of the external impairments being AM interferences or thermal impairments.

Bradley teaches that it was well known in the art to consider external impairments such as AM interferences and thermal impairments, (col. 1, line 43-col. 2, line 11) so that line impairments can be detected and eliminated.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Barton by considering AM and thermal impairments as taught by Bradley so that line impairments can be eliminated.

Regarding claims 9,22,25,27,33,36 and 38, while Barton teaches of detecting noise and collecting statistical data, Barton does not specifically teach detecting a signal to noise ratio and collecting statistical data about an aggregate signal-to-noise ration and aggregate attenuation values.

Bradley teaches that it was well known in the art to have a method for detecting a signal to noise ratio change (col. 1, line 57-col. 2, line 2) and collecting statistical data about an aggregate signal-to-noise ratio of the communication system and about the aggregate power attenuation values, (col. 1, lines 44-56).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Barton by collecting statistical data about an aggregate signal-to-noise and aggregate power attenuation values as taught by Bradley so that line disturbances can be eliminated.

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8. Claims 13 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barton in view of Coiffi and further in view of Bradley.

Regarding claims 13 and 15, while Barton teaches of detecting noise and collecting statistical data, Barton does not specifically teach detecting a signal to noise ratio and collecting statistical data about an aggregate signal-to-noise ration and aggregate attenuation values.

Bradley teaches that it was well known in the art to have a method for detecting a signal to noise ratio change (col. 1, line 57-col. 2, line 2) and collecting statistical data about an aggregate signal-to-noise ratio of the communication system and about the aggregate power attenuation values, (col. 1, lines 44-56).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Barton by collecting statistical data about an aggregate signal-to-noise and aggregate power attenuation values as taught by Bradley so that line disturbances can be eliminated.

Allowable Subject Matter

9. Claims 14,26 and 37 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

10. Applicant's arguments filed August 26, 2003 have been fully considered but they are not persuasive.

11. Applicant contents that claim 1 is not obvious in view of Barton and Cioffi.

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In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Barton suggests on col. 2, lines 4-7 that preventive maintenance is desired so that problems are not re-experienced therefore since cross talk is a known impairment as taught by Barton then one of ordinary skill in the art would have included known cross-talk transfer functions as taught by Cioffi to determine impairments in a line so that preventive maintenance can be accomplished.

12. Applicants further contend that Barton and Cioffi do not teach "using said statistical models and said a priori distributions to diagnose probable cause of events detected.." The Examiner respectfully disagrees.

The Examiner believes that Barton in view of Cioffi teaches this since Barton teaches using historical data/statistical models and information to diagnose problems (a priori distributions) and to stop future problems from occurring. Therefore, the determination of data to stop further problems reads on a priori distributions since the future problems are derived from present problems.

13. Applicants contend that Cioffi does not disclose “using said statistical models and said priori distribution.” The Examiner respectfully disagrees.

The Examiner believes that the combination of Barton and Cioffi teaches using statistical models and said a priori distributions since statistical data is used for preventive maintenance. Therefore, since Barton specifically teaches of using historical data which includes data that was deductive from past problems and from impairments detected from the line then the combination of Barton and the cross-talk transfer functions of Cioffi would have allowed one skill in the art to develop historical data to detect further cross-talk problems.

Conclusion

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

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CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

15. Any response to this action should be mailed to:

Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

or faxed to:

(703) 872-9306, (for formal communications intended for entry)

Or:

(703) 872-9314, (for informal or draft communications, please label
"PROPOSED" or "DRAFT")

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal
Drive, Arlington, VA, Sixth Floor (Receptionist).

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ovidio Escalante whose telephone number is (703) 308-6262. The examiner can normally be reached on Monday to Friday from 6:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Fan Tsang, can be reached on (703) 305-4895. The fax phone number for this Group is (703) 872-9306.

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Communications via Internet e-mail regarding this application, other than those under 35 U.S.C. 132 or which otherwise require a signature, may be used by the applicant and should be addressed to [fan.tsang@uspto.gov].

All Internet e-mail communications will be made of record in the application file. PTO employees do not engage in Internet communications where there exists a possibility that sensitive information could be identified or exchanged unless the record includes a properly signed express waiver of the confidentiality requirements of 35 U.S.C. 122. This is more clearly set forth in the Interim Internet Usage Policy published in the Official Gazette of the Patent and Trademark on February 25, 1997 at 1195 OG 89.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

Ovidio Escalante
Examiner
Group 2645
November 17, 2003

FAN TSANG
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600

A handwritten signature in black ink, appearing to read 'Fan Tsang', with a long horizontal stroke extending to the right.